

CLAIMS

1. A unitary cell, tissue and/or microorganism proliferation and delivery apparatus comprising at least one proliferation chamber for containing a growth medium; at least one inoculation chamber for containing an inoculum; and means for separating the proliferation and inoculation chambers, the separating means being openable to connect the insides of the chambers to each other to inoculate the growth medium with the inoculum, to allow proliferation of the said cell, tissue and/or microorganism.
2. Apparatus according to claim 1 wherein the inoculum is provided in a form which is stable and viable beyond the normal life-span of a conventional culture in a closed container, the arrangement being such that the inoculum and growth medium are stored and transported separated from each other in the apparatus, until such time as a proliferated culture is to be applied, whereupon the growth medium is inoculated and proliferation allowed to take place, whereafter the proliferated culture is dispensed from the apparatus.
3. Apparatus according to claim 1 or claim 2 which is portable.

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4. Apparatus according to any one of the preceding claims which is disposable.
5. Apparatus according to any one of the preceding claims wherein the growth medium is cell, tissue and/or microorganism-specific.
6. Apparatus according to any one of the preceding claims wherein the growth medium is sterilised, pasteurised, filter sterilised, ultra high temperature sterilised, irradiated, and/or preserved prior to inoculation.
7. Apparatus according to any one of the preceding claims wherein the separating means and inside of the proliferation chamber is rendered sterile prior to inoculation.
8. Apparatus according to any one of the preceding claims wherein the chambers are anaerobic.
9. Apparatus according to any one of the preceding claims which is provided with opening means for opening the separating means, without compromising the anaerobiosis of the inside of the chambers, the arrangement being such that the growth medium is inoculated and the microorganism proliferated anaerobically and aseptically.

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10. Apparatus according to claim 9 wherein the chambers are connected to each other via a passage.
11. Apparatus according to claim 10 wherein the separating means is in the form of a septum.
12. Apparatus according to claim 11 wherein the opening means is in the form of a spike for piercing the septum.
13. Apparatus according to claim 12 wherein the inoculation chamber is defined by a vial-type container having a mouth which is connected to one end of the passage.
14. Apparatus according to claim 13 wherein the said septum covers the said mouth.
15. Apparatus according to claim 13 or 14 wherein the spike is mounted in the passage directed at the septum, and wherein the inoculation chamber is connected to the said one end of the passage via advancement means, the arrangement being further such that, in use, the inoculation chamber is advanced inwardly towards the spike, until the spike pierces the septum.

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16. Apparatus according to any one of claims 11 to 15 wherein the vial-type container is flexible, the arrangement being such that, in use, the inoculation chamber is compressed after the septum has been opened to inoculate the growth medium.

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17. Apparatus according to any one of claims 11 to 15 wherein the apparatus is provided with urging means for urging the inoculum into the proliferation chamber after the septum has been opened to inoculate the growth medium.

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18. Apparatus according to any one of claims 11 to 15 wherein there is a pressure differentiation between the two chambers causing the inoculum to flow into the proliferation chamber after the septum has been opened to inoculate the growth medium.

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19. Apparatus according to any one of the preceding means which is provided with a port for connecting to a dosing or application means.

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20. Apparatus according to claim 19 wherein the arrangement is such that pressure, which builds up in the proliferation chamber during the anaerobic cultivation of the microorganism, urges the proliferated culture through the said port.

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21. Apparatus according to any one of the preceding claims wherein the proliferation chamber is defined or provided by a flexible infusion bag type container.
- 5 22. Apparatus according to any one of claims 1 to 19 wherein the proliferation chamber is in the form of a "carboy"- type container.
23. Apparatus according to any one of the preceding claims which includes additional proliferation inoculation chambers connectable to the other
10 chambers.
24. Apparatus according to any one of the preceding claims which is provided with an incubation means for controlling proliferation conditions of the inoculated growth media.
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25. Apparatus according to any one of the preceding claims wherein the inoculum is a pure culture of a mixed culture.
26. Apparatus according to any one of the preceding claims wherein the
20 inoculum is selected from the group comprising bacteria, viruses, fungi, other microorganisms, tissues, and cells.

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27. A method for the proliferation and delivery of cells, tissue cultures and/or microorganisms including the steps of :

- disposing an inoculum in an inoculation chamber;
- disposing a growth medium for the inoculum in a proliferation chamber which is separated from the inoculation chamber by an openable separating means;
- storing and transporting the inoculum and uninoculated growth medium separated towards a point of use;
- opening the separating means to inoculate the growth medium;
- allowing the cells, tissue cultures and/or microorganisms to proliferate to form a proliferated culture; and
- dispensing the proliferated culture from the proliferation chamber.

28. A method according to claim 27 which includes the further step of delivering the proliferated culture to a target locus.

29. A method according to claim 27 or claim 28 wherein the inoculation and proliferation chambers are anaerobic and wherein the steps of disposing, storing, transporting, inoculating, opening, and proliferation take place anaerobically.

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30. A method according to any one of claims 27 to 29 which includes the further step of controlling and/or adjusting proliferation conditions of the inoculated growth medium.
- 5 31. A method for the proliferation and delivery of cells, tissue cultures and/or microorganisms substantially as herein described with reference to the accompanying drawings.
- 10 32. A unitary cell, tissue and/or microorganism proliferation and delivery apparatus substantially as herein described and as illustrated in the accompanying drawings.

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